Livermore-Pleasanton BART Extension Study Summary Final Report

The preparation of this report has been financed in part through a grant from the U.S. Department of Transportation, Urban Mass Transportation Administration under the Urban Mass Transportation Act of 1964, as amended.

The contents of this report do not necessarily reflect the official views or policy of the U. S. Department of Transportation.

Prepared for LIVERMORE-PLEASANTON BART EXTENSION BOARD

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DE LEUW, CATHER & COMPANY, ENGINEERS, SAN FRANCISCO
A Joint Venture for Livermore-Pleasanton BART Extension Planning and Conceptual Engineering

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March 1975
Revised December 1975
Published July 1976

SETTING

BART ALTERNATIVES

Selection of a BART route was a two step process involving first a choice among five corridors through which the Valley could be connected to the existing system, followed by a choice between a north and a south route within the Valley.

The Dublin Canyon corridor was recommended by the consultants and selected by the Board because it would have the shortest travel times for Valley BART patrons to all destinations on the existing system except those east of Rockridge Station on the Concord Line, lowest capital costs, highest patronage, and greatest public support. Within the Valley a southern route through downtown Pleasanton and Livermore was selected because it would minimize average travel time, would minimize travel on local streets, and would link downtown Pleasanton with downtown Livermore. With a subway through downtown Pleasanton, as proposed, this route would have the least noise impact of the Dublin Canyon routes. Finally, this route would be the easiest to hold without major early acquisition because almost all portions are on public right of way, public land, or railroad right of way.

Other corridors studied were San Ramon Valley with a connection to the Concord Line at Walnut Creek, Niles Canyon/Mission Pass with a connection to the Fremont Line at Fremont or Union City, and Crow Canyon connecting to Bay Fair Station.

Niles Canyon and Mission Pass (I-680) were dropped because of low patronage potential, high cost relative to patronage, longer travel times for most patrons (7 minutes longer for 60 percent of the riders), and inability to serve Dublin-San Ramon. A Mission Pass route would avoid environmental disruption in Niles Canyon, but would require a costly tunnel because BART cannot climb at the freeway grade. The Crow Canyon route was given only brief consideration because it would be indirect for most users.

through this corridor would be more likely to drive to Bay Fair Station. The expressed views of Danville, Alamo, and Walnut Creek were in opposition to a BART extension through their communities. Finally, the Concord Line definitely will be overloaded and is much less able to carry additional riders than the Fremont Line, a capacity deficiency that would be aggravated by a Pittsburg-Antioch BART extension.

Even if a large scale shift of office employment to Walnut Creek were feasible, it can be argued that the regional interest is best served by encouraging investment in Oakland, where the economic future is in doubt, rather than in Walnut Creek which already is booming.

In the Valley, the task was to select the most efficient set of stations and connect them with the least disruptive line. Once a corridor decision had been made, the station at the west end of the Valley adjoining the proposed Stoneridge Regional Shopping Center and the East Livermore Station were fixed, leaving a difficult choice between a northern route across the Valley with outlying stations and a southern route with stations in or near the two downtowns. Although the southern route is longer, it runs closer to where more people will live as projected by the 1990 general plans and would result in nominal total time savings, averaging one minute per trip.

In Pleasanton, an outlying site on the northern line at Las Positas Boulevard west of Santa Rita Road would save Livermore riders one minute at the expense of Pleasanton riders, would cause less line disruption, would avoid displacing low and moderate income housing, would serve the proposed Valley Memorial Hospital, and could foster maximum BART-oriented development on adjacent, vacant land. On the other hand, the selected station site on the southern line at Bernal Avenue and Main Street south of the Alameda County Fairgrounds would save Pleasanton riders two minutes, would relieve congestion during events at the Fairgrounds, would establish the

SELECTED ROUTE

The design, service characteristic
24 mile selected BART route from B
Livermore are briefly described he
ings, schematic station area plans,
of conceptual engineering and opera
are in the full report.

Capacity restrictions of the existing
quire that Daly City-bound trains o
Line be spaced at least 6 minutes ap
patrons would have to transfer at B
to avoid increasing the time between
the Valley Line or the Fremont Line
With 3.5 minutes allowed for the tra
for walking and 1.5 minutes waiting
from Pleasanton to Oakland City Cen
would take 36 minutes.

Livermore trains would start from a
of the existing Bay Fair platform and
parallel to the Fremont Line, cross u
freeway lanes, and enter the median o
From the East 14th Street overpass in
Dublin, BART would occupy forty fee
This freeway median will be incorpor
struction of I-580 during the next five
not a BART rail extension is built. F
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This summary highlights the findings of a lengthy technical report that describes and illustrates more fully the process leading to the selection of the route, the costs, benefits, and environmental impacts of alternatives studied, and the pros and cons of a BART rail extension vs. an express bus alternative.

PURPOSE OF THE STUDY

Rapid growth of the commuter population since 1960 combined with severe air pollution creates the need for a transit link that will make the Livermore-Amador-San Ramon Valley an integral part of the BART 75 mile, three county system. Valley taxpayers have been paying their share of the costs of the initial system with the expectation that they soon will share fully in the benefits. The express bus service to BART's Bay Fair Station that began late in 1974, is an initial step.

The present study, started in 1972, has been conducted by a team of planning and engineering consultants and the BART staff under the direction of the Livermore-Pleasanton BART Extension Board of Control composed of three members of the Metropolitan Transportation Commission (MTC), 4 BART directors,

SETTING

In 1972, the Valley population was 100,000, and barring a prolonged economic downturn or stringent anti-growth restrictions, it will increase to a range between 178,000 and 227,000 by 1990 (143,000 to 185,000 for the Alameda County portion alone). As many as 44,000 Valley residents will commute out of the Valley to work (30 percent bound for Oakland and San Francisco), while 18,000 people will commute into the Valley, and 36,000 Valley residents will hold local jobs. Today, about three quarters of travel outside the Valley is through the Dublin Canyon corridor.

Currently, 90 percent of the Valley's households occupy single family homes. Most commuters chose to live there because they were willing to trade a relatively long journey to work for a new single family home in a community comprised largely of families like themselves. There is a strong desire to preserve open space, although the threat of wall-to-wall city is not immediate. If the present low-density housing pattern were to continue, only 39 to 45 percent of the Valley's buildable land would be urbanized by 1990. The sharp rise in housing costs of the last several years suggests that many, if not most, newcomers may be unable to afford single family detached homes, so per capita land consumption is likely to decline.

REGIONAL AND VALLEY PLANNING ISSUES

Because transit is best suited for carrying employees in a well defined travel corridor to areas of high employment concentration within walking distance of a station, BART tends to reinforce the existing regional office centers — San Francisco and, to a lesser extent, Oakland. It appears unlikely that large, concentrated subcenters will develop at Walnut Creek or Fremont, for example, unless there are severe constraints on automobile use and overloads on existing transit serving core areas. Some employers will locate near outlying BART stations, usually with no reduction in the amount of parking provided, so BART would offer little incentive for these employees to leave their cars at home. If regional policy were to use BART to exert maximum influence on the distribution of jobs, it might be necessary to build rail extensions that would have a much higher cost per passenger carried than alternatives more closely fitting predictable travel desires and oriented toward San Francisco and Oakland. This study found no net regional benefit that would justify connecting the Valley with a subregional center in an effort to decentral-

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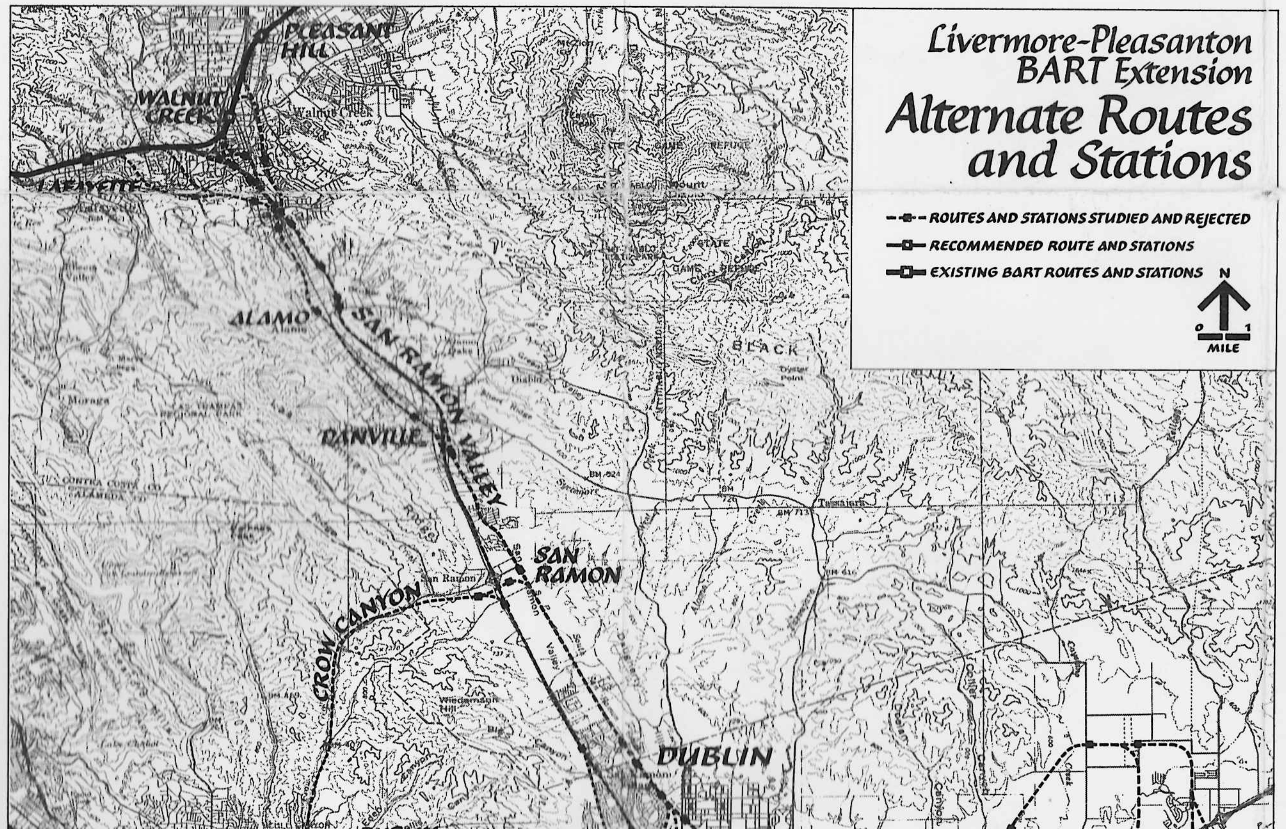
More detailed study was given to the possibility of a connection to Walnut Creek that would add a station in the business district and enhance the city's ability to attract regional offices in competition with Oakland and San Francisco, The benefit would be shortened commute trips and a reduction in total regional travel. However, patronage studies indicated that the Valley's well-established employment orientation toward Hayward, San Leandro, Oakland, and San Francisco would be difficult to change. Even assuming that downtown Walnut Creek employment would increase from 10,000 now to 35,000 in 1990 rather than the 1990 trend forecast of 22,000, a San Ramon BART line would attract only 60 percent of the patronage of a Dublin Canyon line. If 50 percent of Walnut Creek's additional employees were Valley residents and 35 percent used BART to get to work, they would account for only 4,100 daily trips. The much larger number of Valley residents who would have to spend a half hour longer each day to reach their destinations



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In Pleasanton, an outlying site on the northern line at Las Positas Boulevard west of Santa Rita Road would save Livermore riders one minute at the expense of Pleasanton riders, would cause less line disruption, would avoid displacing low and moderate income housing, would serve the proposed Valley Memorial Hospital, and could foster maximum BART-oriented development on adjacent, vacant land. On the other hand, the selected station site on the southern line at Bernal Avenue and Main Street south of the Alameda County Fairgrounds would save Pleasanton riders two minutes, would relieve congestion during events at the Fairgrounds, would establish the importance of the new civic center and attract office development nearby, would connect downtown Pleasanton with downtown Livermore, and could bring consolidation of Pleasanton's two railroads into a single right of way.

The West Livermore Station site located at Stanley Boulevard and Murrieta Boulevard was selected over an outlying station site on Portola Avenue near the I-580 freeway and a downtown site on the Western Pacific tracks between "L" Street and North Livermore Avenue because it would create less congestion and would cause patronage to be shared more evenly with the East Livermore Station. More commuters live near the West Livermore Station site now, and it has the greatest potential for both commuter-oriented housing and jobs within walking distance. In comparison with the outlying site, a BART line serving the selected West Livermore Station would cause less disruption in Livermore and would reduce the home to station travel time for Livermore BART patrons by 10 percent.

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PURPOSE OF THE STUDY

Rapid growth of the commuter population since 1960 combined with severe air pollution creates the need for a transit link that will make the Livermore-Amador-San Ramon Valley an integral part of the BART 75 mile, three county system. Valley taxpayers have been paying their share of the costs of the initial system with the expectation that they soon will share fully in the benefits. The express bus service to BART's Bay Fair Station that began late in 1974, is an initial step.

The present study, started in 1972, has been conducted by a team of planning and engineering consultants and the BART staff under the direction of the Livermore-Pleasanton BART Extension Board of Control composed of three members of the Metropolitan Transportation Commission (MTC), 4 BART directors, and the city managers of Pleasanton and Livermore. A Technical Advisory Committee and a Citizens' Advisory Committee reviewed progress at frequent intervals and made recommendations to the Extension Board.

The purpose of the study was to identify and evaluate alternative routes for the extension of BART to Pleasanton and Livermore. Alternative corridors connecting to the present BART system and routes in the Livermore-Amador-San Ramon Valley were analyzed and a comprehensive evaluation of their engineering feasibility, cost, patronage, and environmental impact was prepared.

Once a route had been selected by the Board following public hearings on alternatives, conceptual engineering, including plans and line profiles, schematic station site plans and support facility plans, and cost estimates were completed. This detailed system planning is intended to present sufficiently accurate information for a final decision on the technical merits and service characteristics of a Livermore-Pleasanton BART extension. To place the rail transit extension in perspective, a systematic comparison with a bus alternative was included.

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Currently, 90 percent of the Valley's households occupy single family homes. Most commuters chose to live there because they were willing to trade a relatively long journey to work for a new single family home in a community comprised largely of families like themselves. There is a strong desire to preserve open space, although the threat of wall-to-wall city is not immediate. If the present low-density housing pattern were to continue, only 39 to 45 percent of the Valley's buildable land would be urbanized by 1990. The sharp rise in housing costs of the last several years suggests that many, if not most, newcomers may be unable to afford single family detached homes, so per capita land consumption is likely to decline.

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Concern about the effect of growth on air quality is the principal environmental issue in the Valley because air pollution has been more severe than in most other parts of the Bay Area. Combined with this is the widespread wish to reduce population growth and to preserve open space found in most California communities on the fringes of major metropolitan areas. Inability to expand school classroom and sewage treatment capacities in pace with demand has made Valley residents particularly growth conscious. These feelings conflict with the desire for BART service, and many Valley residents interviewed during this study would reject BART if they believed it would accelerate growth or stimulate apartment construction. To establish the probable dimensions of BART's potential impact on the amount and form of urban development and the amount of vehicle travel, the study examined a wide range of reasonable growth and transit usage assumptions. The conclusion was that BART could bring moderate, but significant reductions in the amount of land urbanized and in the use of automobiles. This would result mainly from an increase in the share of high density housing and from concentration of new apartments near BART stations.

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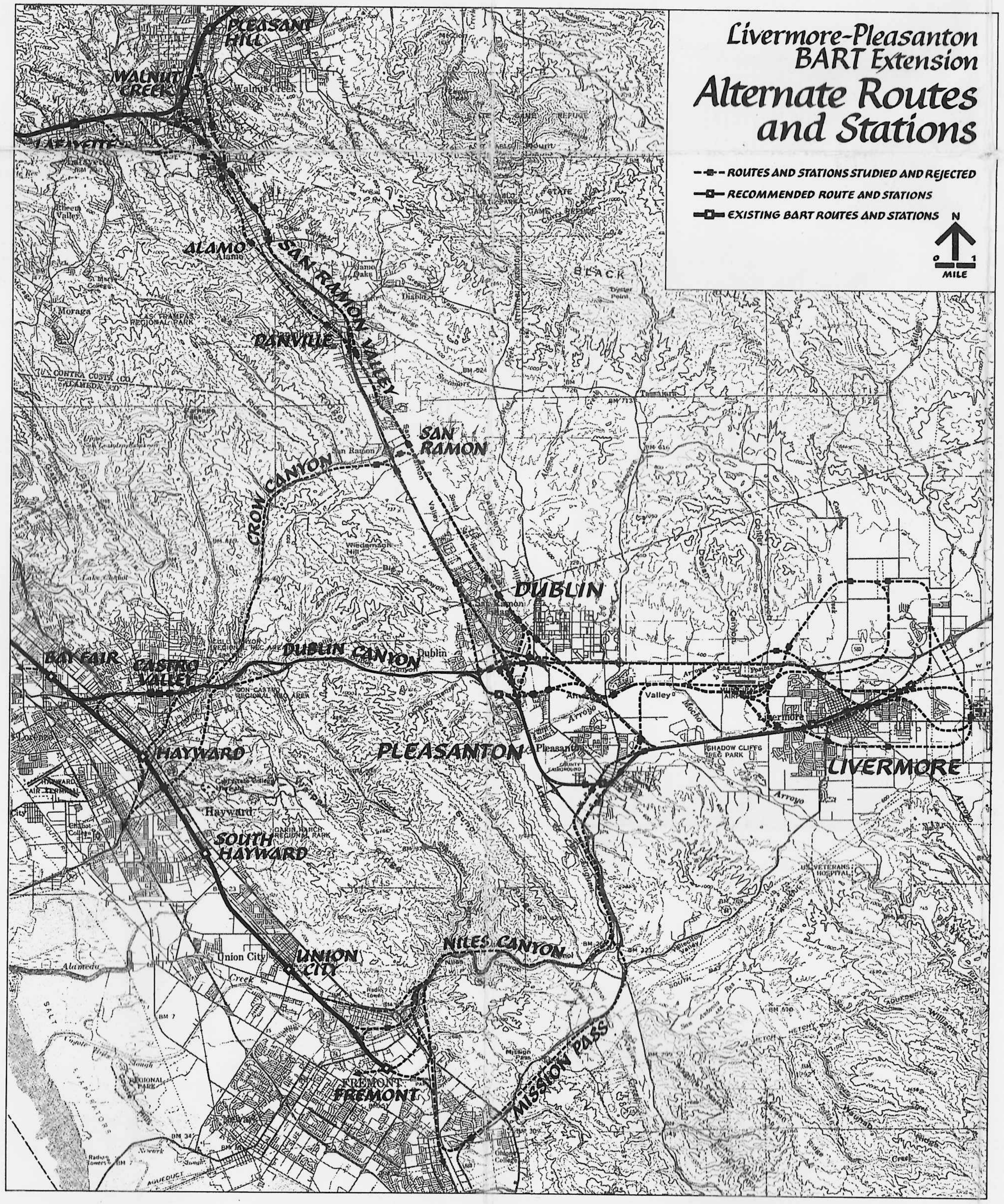

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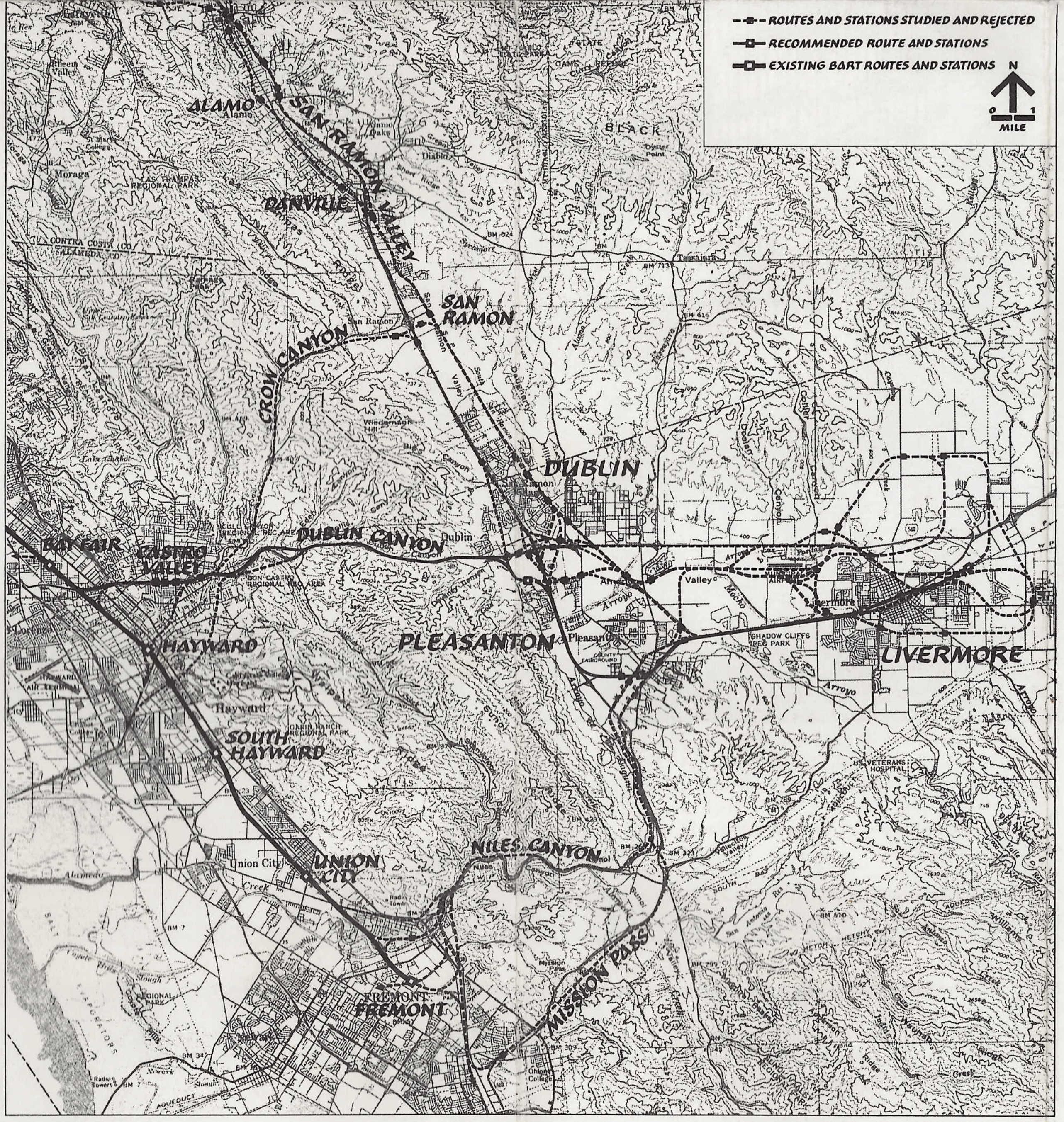

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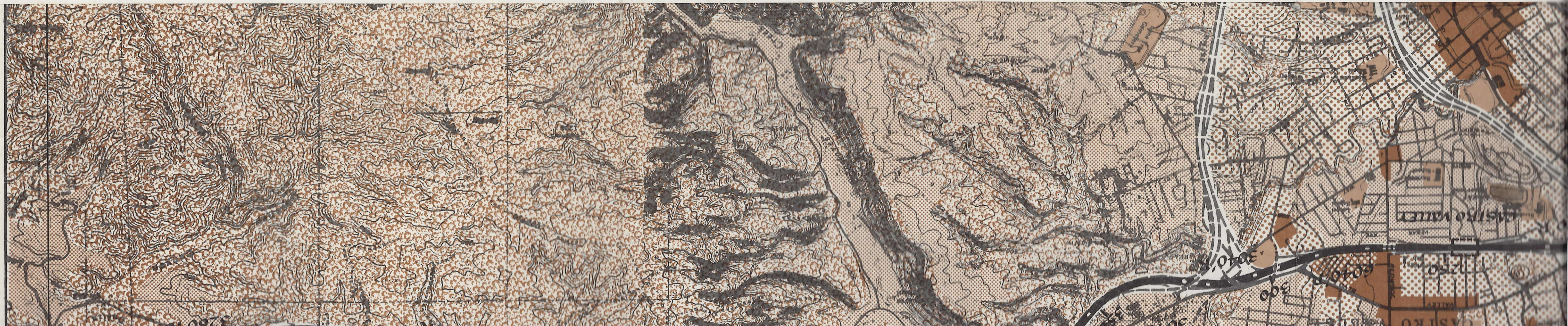

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Even if a large scale shift of office employment to Walnut Creek were feasible, it can be argued that the regional interest is best served by encouraging investment in Oakland, where the economic future is in doubt, rather than in Walnut Creek which already is booming.

In the Valley, the task was to select the most efficient set of stations and connect them with the least disruptive line. Once a corridor decision had been made, the station at the west end of the Valley adjoining the proposed Stoneridge Regional Shopping Center and the East Livermore Station were fixed, leaving a difficult choice between a northern route across the Valley with outlying stations and a southern route with stations in or near the two downtowns. Although the southern route is longer, it runs closer to where more people will live as projected by the 1990 general plans and would result in nominal total time savings, averaging one minute per trip.

In Pleasanton, an outlying site on the northern line at Las Positas Boulevard west of Santa Rita Road would save Livermore riders one minute at the expense of Pleasanton riders, would cause less line disruption, would avoid displacing low and moderate income housing, would serve the proposed Valley Memorial Hospital, and could foster maximum BART-oriented development on adjacent, vacant land. On the other hand, the selected station site on the southern line at Bernal Avenue and Main Street south of the Alameda County Fairgrounds would save Pleasanton riders two minutes, would relieve congestion during events at the Fairgrounds, would establish the importance of the new civic center and attract office

SELECTED ROUTE

The design, service characteristics, and cost of the 24 mile selected BART route from Bay Fair Station to Livermore are briefly described here. Profile drawings, schematic station area plans, and a discussion of conceptual engineering and operating alternatives are in the full report.

Capacity restrictions of the existing BART system require that Daly City-bound trains on the Fremont Line be spaced at least 6 minutes apart. Thus Valley patrons would have to transfer at Bay Fair Station to avoid increasing the time between trains on either the Valley Line or the Fremont Line south of Bay Fair. With 3.5 minutes allowed for the transfer (2 minutes for walking and 1.5 minutes waiting time), the trip from Pleasanton to Oakland City Center, for example, would take 36 minutes.

Livermore trains would start from a new platform east of the existing Bay Fair platform and would run south parallel to the Fremont Line, cross under the westbound freeway lanes, and enter the median of Route 238 Freeway. From the East 14th Street overpass in San Lorenzo to Dublin, BART would occupy forty feet of an 80 foot median. This freeway median will be incorporated in the reconstruction of I-580 during the next five years whether or not a BART rail extension is built. Five sites for a Castro Valley Station were evaluated, but none were selected by the Board of Control. Instead further studies are recommended by the Board following a decision to build the BART extension.

At Dublin BART would leave the freeway median on aerial structure, cross over Foothill Road, and enter the Dublin-Northwest Pleasanton Station situated north of Stoneridge Drive at the south edge of the proposed Stoneridge Regional Shopping Center. By 1990, 3,600 residents and 4,000 jobs would be within walking distance.

Leaving the station, BART would cross over I-680 Freeway and run at grade between the freeway and the Alamo Canal, then turn and cross over Bernal Avenue and continue on aerial structure parallel to and 1,200 feet south of Bernal Avenue before descending to pass under the Western Pacific and relocated Southern Pacific tracks and enter Pleasanton Station below grade in open cut. The Alameda County Fairgrounds, the civic center and an office/industrial park on San Francisco Water Department land would be within 1,500 feet of the station. In 1990 walking distance residential population would be 650 and there would be 1,400 jobs.

BUS ALTERNATIVE

Because express bus service between Livermore and Bay Fair could handle maximum anticipated travel demand, a bus alternative was designed and compared with the selected BART route. Neither light rail nor various intermediate capacity automated transit system alternatives now in the developmental stage were examined as part of this study.

From Bay Fair to Dublin buses would run in the freeway median using the same space and structures as BART. Park and ride stations in the Valley would be at the sites of the Dublin-Northwest Pleasanton and West Livermore BART stations, at the Alameda County Fairgrounds, and near the intersection of Portola Boulevard and Murrieta Boulevard in Livermore. During peak periods feeder buses would serve residential neighborhoods, stop at the park/ride stations, and then proceed directly to Bay Fair, thereby providing one-seat service to the existing BART system for many Valley transit patrons. Peak hour service would leave park/ride stations every minute in Livermore, every 2½ minutes in Pleasanton, and every 4½ minutes in Dublin-Northwest Pleasanton. Off-peak buses would run every hour.

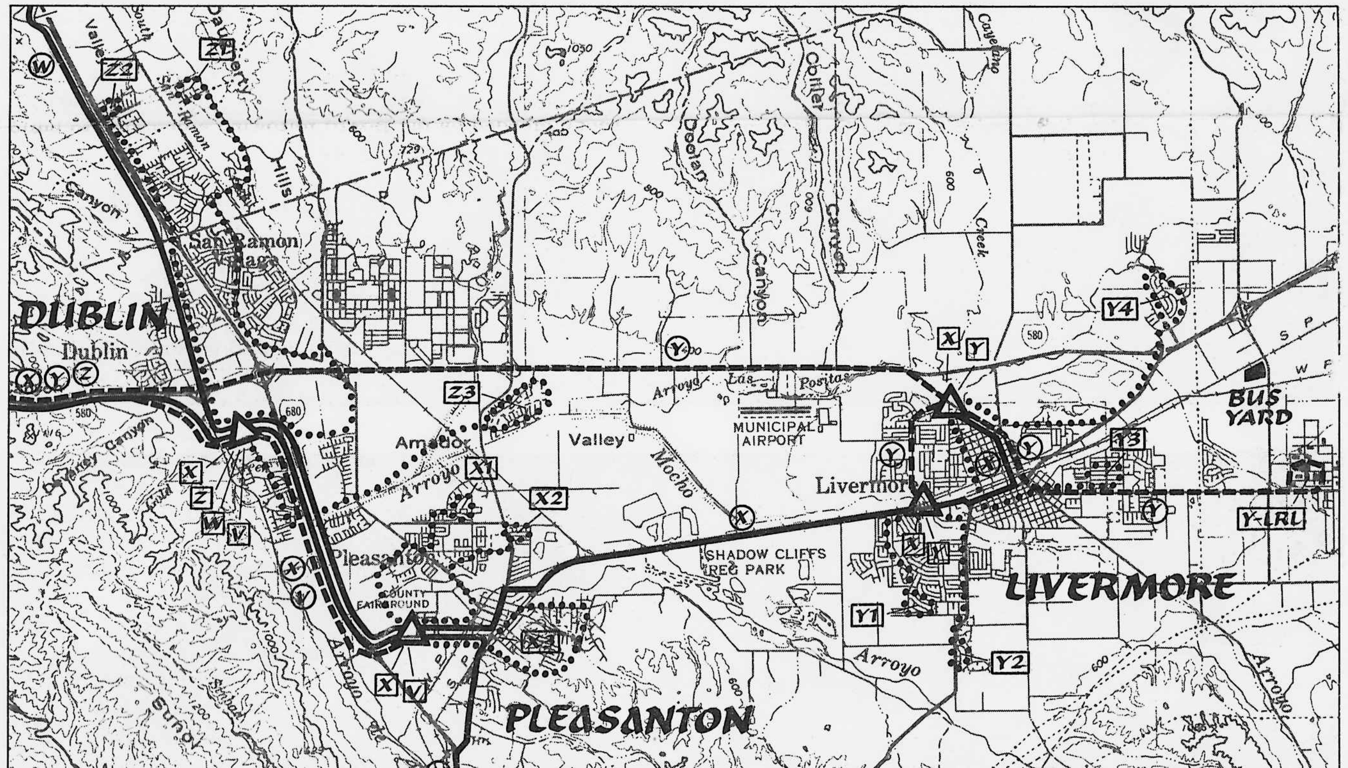
A two-way busway in the I-580 Freeway median could be designed for future conversion to rail service, thus preserving the option of a rail extension. Alternatives including a one-way reversible busway and buses in mixed traffic flow through Dublin Canyon also were evaluated, but rejected because of potential safety hazards and increased operating costs that would offset construction cost savings.

In 1990 the Bus Alternative is projected to attract 22,000 daily trips, substantially less than BART's 39,000, but comparable to current patronage on the Golden Gate Transit buses. When Dublin Canyon work trips alone are compared, BART's margin of superiority is reduced: 18,250 bus vs. 25,000 BART. Patronage could be increased by running buses more frequently during off-peak hours. Buses also could become more attractive if the 7-11 minute additional running time to Bay Fair could be reduced. Several possibilities exist:

- Exempt buses operating on an exclusive busway from the 55 mile per hour speed limit. Savings: 2 minutes per trip.
- Operate buses at 55 miles per hour on Elgin Street south of Bay Fair Station, instead of 25 miles per hour. Savings: 2 minutes per trip.
- Build a high capacity transfer facility at Bay Fair Station. Savings: 0.5 minutes per trip.

Valley Express Bus Routes and Park/Ride Stations

— ALL DAY SERVICE
- - - PEAK PERIOD EXPRESS SERVICE
••••• LOCAL PORTION OF PEAK PERIOD EXPRESS SERVICE
○ ROUTE
□ ROUTE TERMINUS
△ PARK-RIDE LOT



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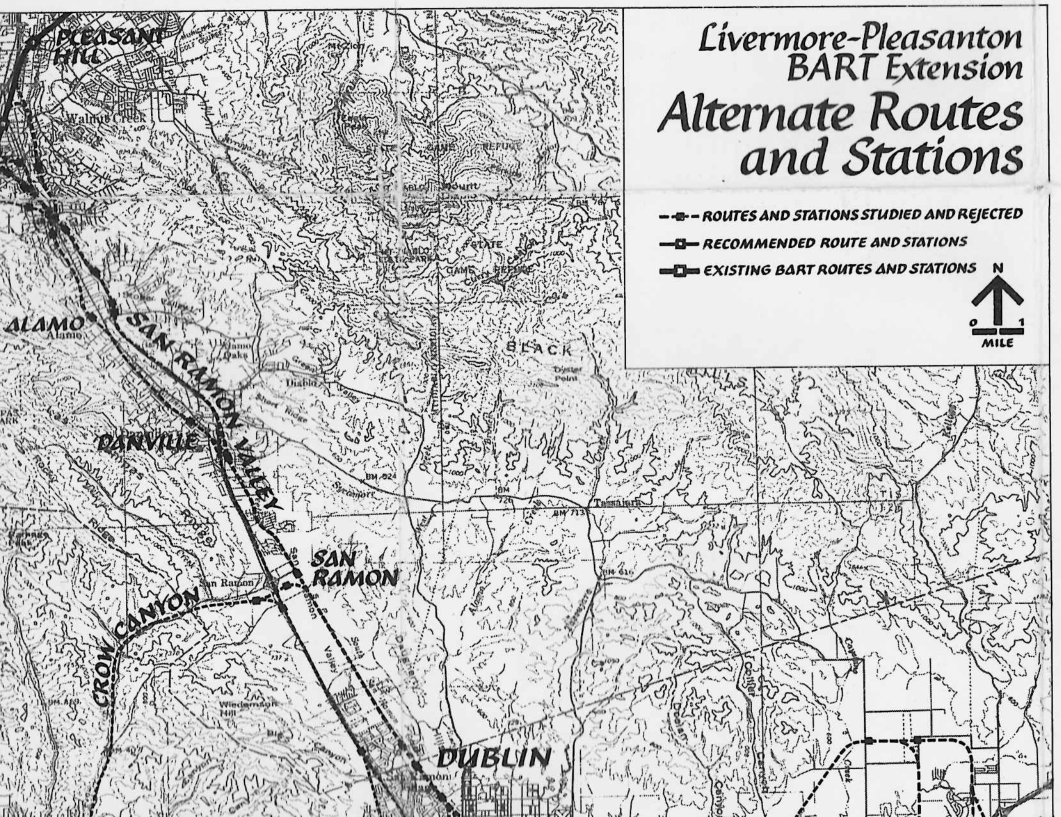
The West Livermore Station site located at Stanley Boulevard and Murrieta Boulevard was selected over an outlying station site on Portola Avenue near the I-580 freeway and a downtown site on the Western Pacific tracks between "L" Street and North Livermore Avenue because it would create less congestion and would cause patronage to be shared more evenly with the East Livermore Station. More commuters live near the West Livermore Station site now, and it has the greatest potential for both commuter-oriented housing and jobs within walking distance. In comparison with the outlying site, a BART line serving the selected West Livermore Station would cause less disruption in Livermore and would reduce the home to station travel time for Livermore BART patrons by 10 percent.



Livermore-Pleasanton BART Extension

Alternate Routes and Stations

ROUTES AND STATIONS STUDIED AND REJECTED
RECOMMENDED ROUTE AND STATIONS
EXISTING BART ROUTES AND STATIONS
N
0
1
MILE
PLEASANT HILL
BLACK
ALAMO
SAN RAMON VALLEY
DANVILLE
SAN RAMON
CROW CANYON
DUBLIN

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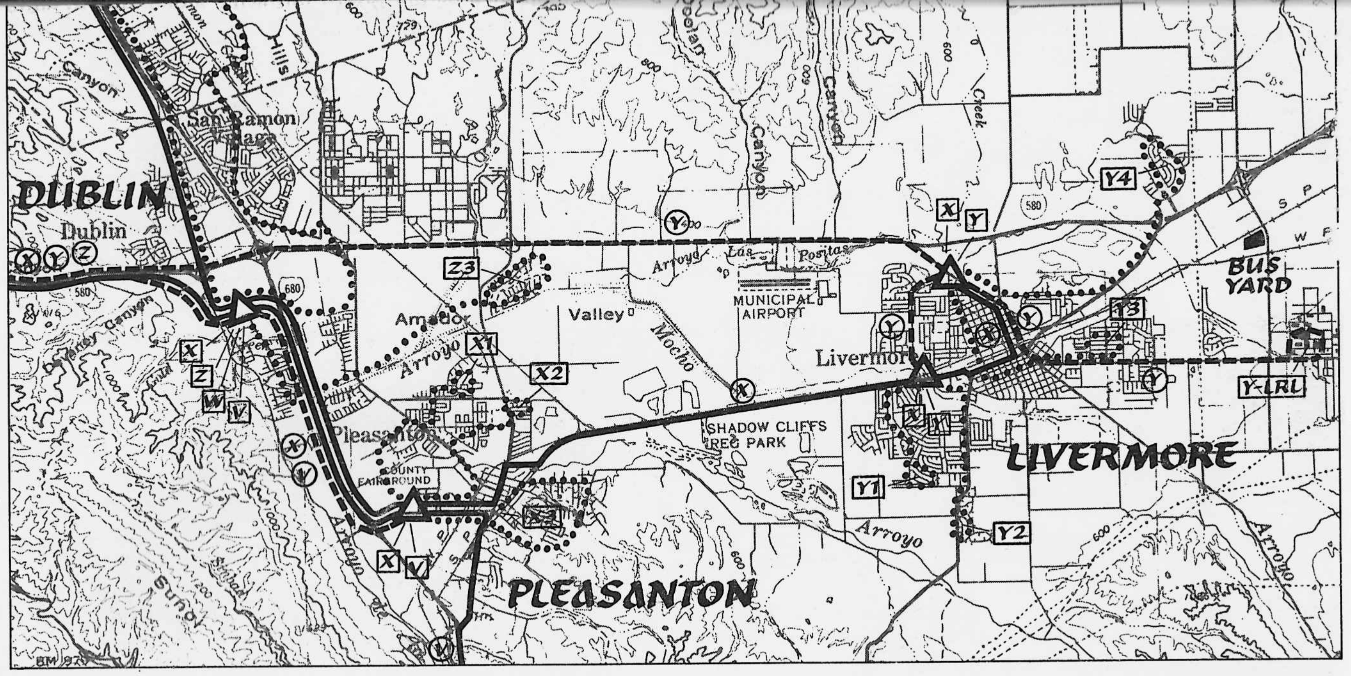
BART then would enter a cut-and-cover subway under the present Southern Pacific tracks, emerging north of Ray Street to cross over Arroyo del Valle. An aerial structure through downtown Pleasanton would cause too much noise and visual disruption, while the cost of a bored tunnel under the existing Southern Pacific tracks would be about the same as for relocation of the Southern Pacific tracks to the present Western Pacific right of way. Relocation would make downtown land available for other uses and would allow underpasses (not feasible at the present Southern Pacific location) to be built for both railroads.

Between Pleasanton and Livermore BART would parallel the railroads on the north side, remaining on aerial structure past the gravel pits to allow rail sidings and then running at grade. The West Livermore Station, just east of Murrieta Boulevard and south of the relocated Southern Pacific tracks, would be reached from Stanley Boulevard and Murrieta Boulevard. A 1990 population of 1,400 and 1,500 jobs would be within walking distance. The Livermore railroad consolidation project currently underway will relocate the Southern Pacific tracks to the Western Pacific right of way between Murrieta Boulevard and the point in east Livermore where the tracks already adjoin. Underpasses are being built at North Livermore Avenue and North "P" Street.

Through Livermore BART is planned to run at grade along the north side of the Western Pacific tracks, requiring completion of railroad consolidation and elimination of all grade crossings. Placing BART on aerial structure or in a subway still would leave the two mainline railroads at grade. A better solution would be to spend the money "saved" for additional undercrossings of all three rail lines and for landscaped berms that would be visual and acoustic barriers.

East of a proposed overpass at First Street BART would continue at grade or on embankment to the East Livermore Station east of Mines Road extension. The surrounding area is designated primarily for industrial use and would have 2,000 jobs and 250 residents in walking radius in 1990. A yard for train storage and routine maintenance 4,000 feet east of the station would end the 24 mile extension.

The five stations on the selected line would be on sites of 11 to 24 acres and would provide all day park-



SUMMARY COMPARISON: BART VS. BUS VS. CAR

Neither BART nor bus service is likely to have a measurable growth-inducing impact unless there are severe restrictions on automobile use because congestion on reconstructed I-580 Freeway is not expected to reach a level that would deter growth. To illustrate the worst possible case, maximum impact of transit on growth, an assumption that 25-50 percent of the 1990 Valley transit patrons represented population induced by transit yields increases of only 12,700 to 25,400 residents with BART and 9,500 to 19,000 with buses. These moderate gains appear to be reasonable upper limits that are consistent with the patronage forecasts and are confirmed by independent studies conducted by MTC showing a maximum growth-inducing impact of 20,000 persons with a BART extension.

If development opportunities are exploited, 2,760 housing units could be added within walking distance of BART stations raising the total to 7,160 units and 18,000 residents. Up to 300 acres of open space would be "saved", assuming these units would have been built in the Valley at lower densities in the absence of BART. A much larger population could live within walking distances of express bus lines, reducing the demand for high density housing near transit.

The capital cost of the Bus Alternative is $80 million (1974 dollars). Adjustment to account for the shorter service life of buses increases the total to $123 million. Annual operating costs in 1990 would be $7.4 million, or $1.12 per passenger-trip compared with revenues of $0.52. The projected deficit of $0.60 is six times the expected per trip deficit rate for a BART extension. Considering operating costs and capital costs together, the 1990 annual cost including debt service is $33.6 million for BART and $13.5 million for the Bus Alternative, resulting in a total cost per passenger-trip of $3.09 on BART and $2.05 on bus. The cost of driving an automobile to Bay Fair would be $2.60 (averaging $2.22 per passenger) excluding freeway construction and maintenance costs and assuming availability of no-cost parking. The cost of providing sufficient parking would be an additional $1 per car per day.

BART would have a greater visual impact because it would require some aerial structure, larger station areas, and more right of way than a bus system, but the dispersed pattern of bus routes would expose more residential areas to noise nuisances than would BART. BART's greater land requirements would cause more displacement and somewhat greater disruption of the natural landscape than a bus system. However, BART would bring greater energy saving and greater reductions in hydrocarbon emissions, a major source of smog, because it would be more effective in getting people out of their cars and BART vehicles are non-polluting. These latter benefits would be offset by any growth-inducing impacts attributable to BART. Measurable points of comparison are summarized in the following table. Costs are 1974 dollars.

	BART	Bus
Capital cost (million)	$370	$ 80
1990 annual cost, including capital & operating cost (million)	$ 33.6	$ 13.5
Daily patronage, 1990	39,000	22,000
Total cost per 1990 passenger-trip	$ 3.09	$ 2.05
Travel time: Valley (Pleasanton Station) to Oakland City Center (minutes)	36	47
Housing units/businesses displaced	222/15	63/2
Noise impact in Valley, 1990 (lineal feet of land use exposed)		
Major (over 5 dbA over standard)	25,700	42,700
Moderate (0-5 dbA over standard)	7,000	52,300
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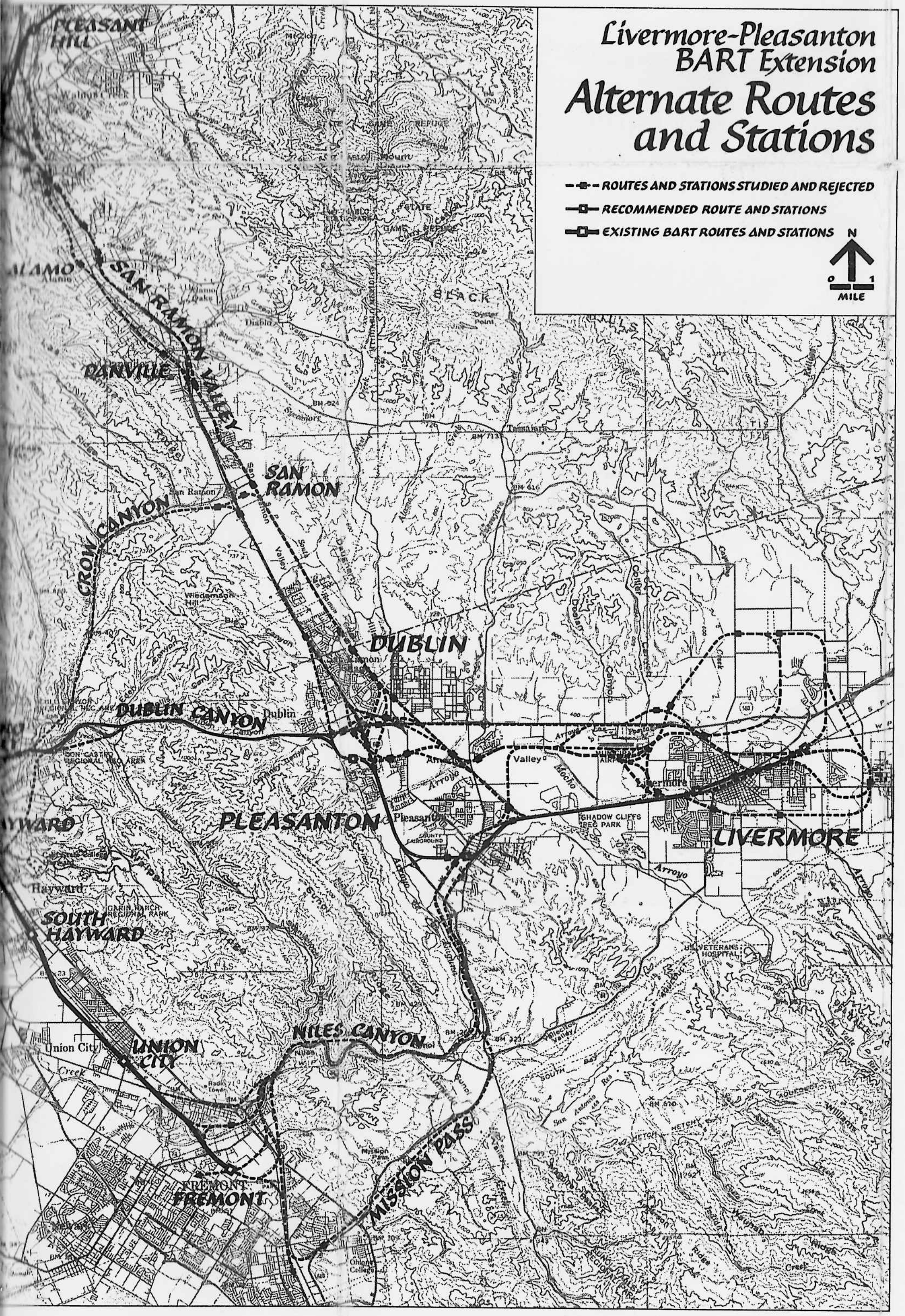

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The five stations on the selected line would be on sites of 11 to 24 acres and would provide all day parking for half of the anticipated 1990 daily patronage. A local bus system would serve a quarter of the daily patrons, and the remainder would be dropped off, walk, or ride bicycles.

Patronage

Patronage studies by BART and MTC project 36,300 daily trips in 1990 on a line connecting the Valley to Bay Fair Station, including 34,000 through Dublin Canyon. Of these, about three quarters would be trips to and from work. Maximum 1990 patronage for a Valley extension from the Concord BART Line at Walnut Creek would be 22,000.

Costs

The total capital cost of the extension is estimated at $370 million (1974 dollars). Right of way would cost about $25 million, construction including related public improvements $245 million, and rolling stock $36 million, with over $60 million allowed for contingencies. The BART staff estimates 1990 operating costs at $7.5 million or $0.69 per passenger-trip and 1990 revenues at $6.4 million or $0.59 per passenger-trip for the extension portion of the trip.

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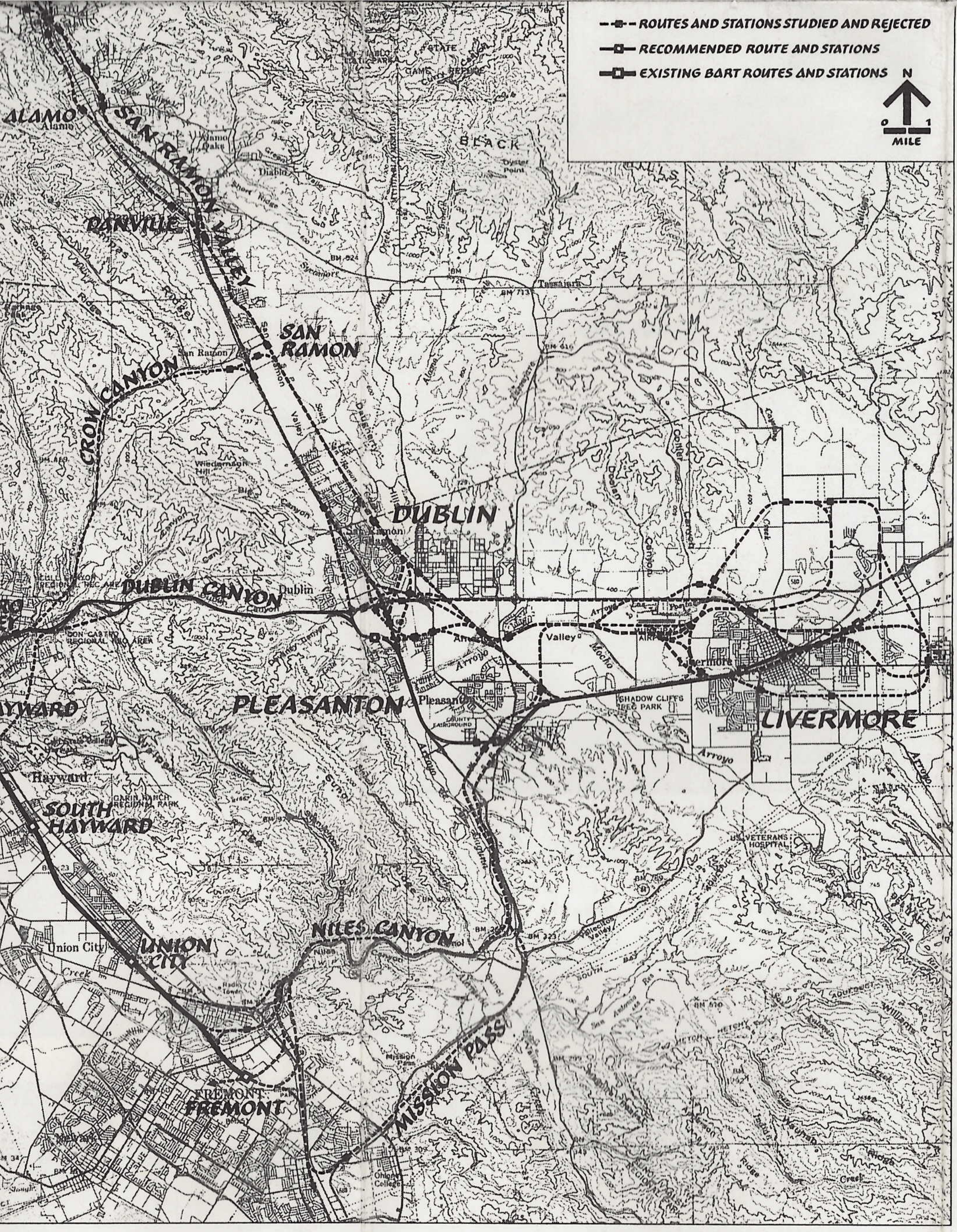
Annual 1990 energy savings (equivalent barrels of oil)	210,000	150,000

BRINGING HIGH QUALITY TRANSIT TO THE VALLEY

If a decision could be made today and financing were available, BART could be in service to Livermore in seven to eight years and the Bus Alternative could be completed two to three years earlier. First, the priority for use of federal and State funds among Bay Area transit improvement projects must be determined by MTC. Even if this could be set immediately, uncertainty about transit financing sources still would make it difficult to predict when service could begin. The most hopeful sign is the strong trend over the last several years toward increased federal and State financial participation. But general recognition that far more of the nation's resources will be used to improve transit has brought forth an even greater flow of project proposals to compete for limited appropriations.

The results of this study will enable decisions to be made on the type, location, and area-wide priority for improved regional transit serving the Valley. The extent of agreement and support from Valley residents and the willingness of communities in the Valley to adopt development policies that are consistent with transit plans will have much to do with when a system is built.

The sooner a decision can be made, the less costly construction will be. For example, an important early action for either the BART extension or the Bus Alternative is to request the California Department of Transportation (CALTRANS) to modify its plans for reconstruction of State Route 238 between Mission Boulevard and I-580 to make room for a BART/busway entry structure. This change, in combination with right of way reservation between the freeway and Elgin Street, would avoid high costs later and requires no decision between BART and bus.



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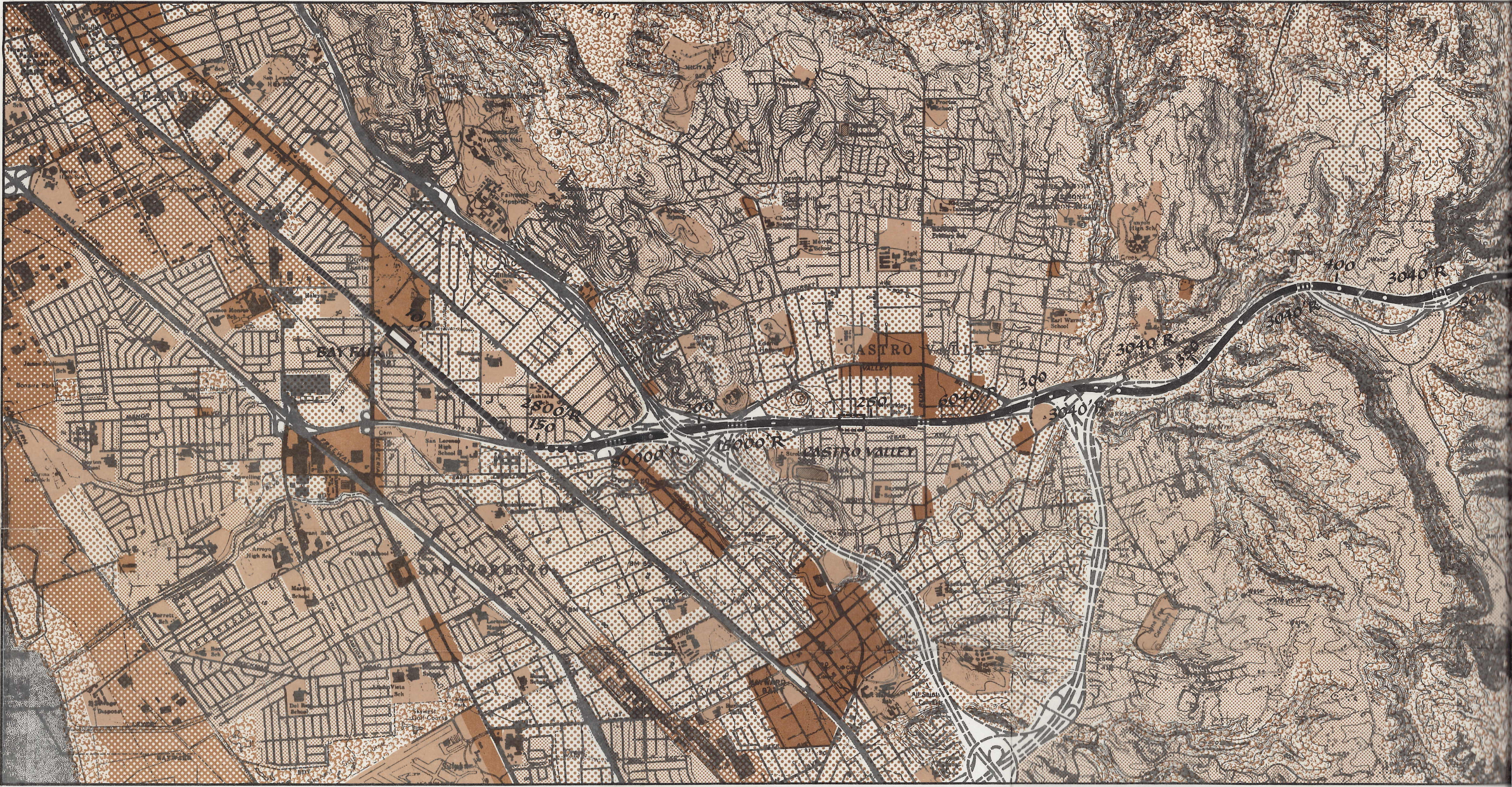
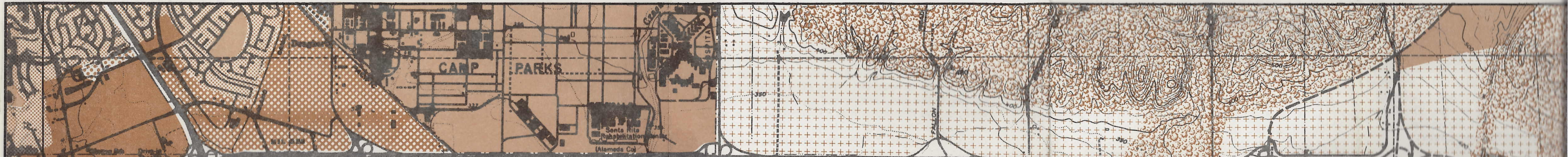
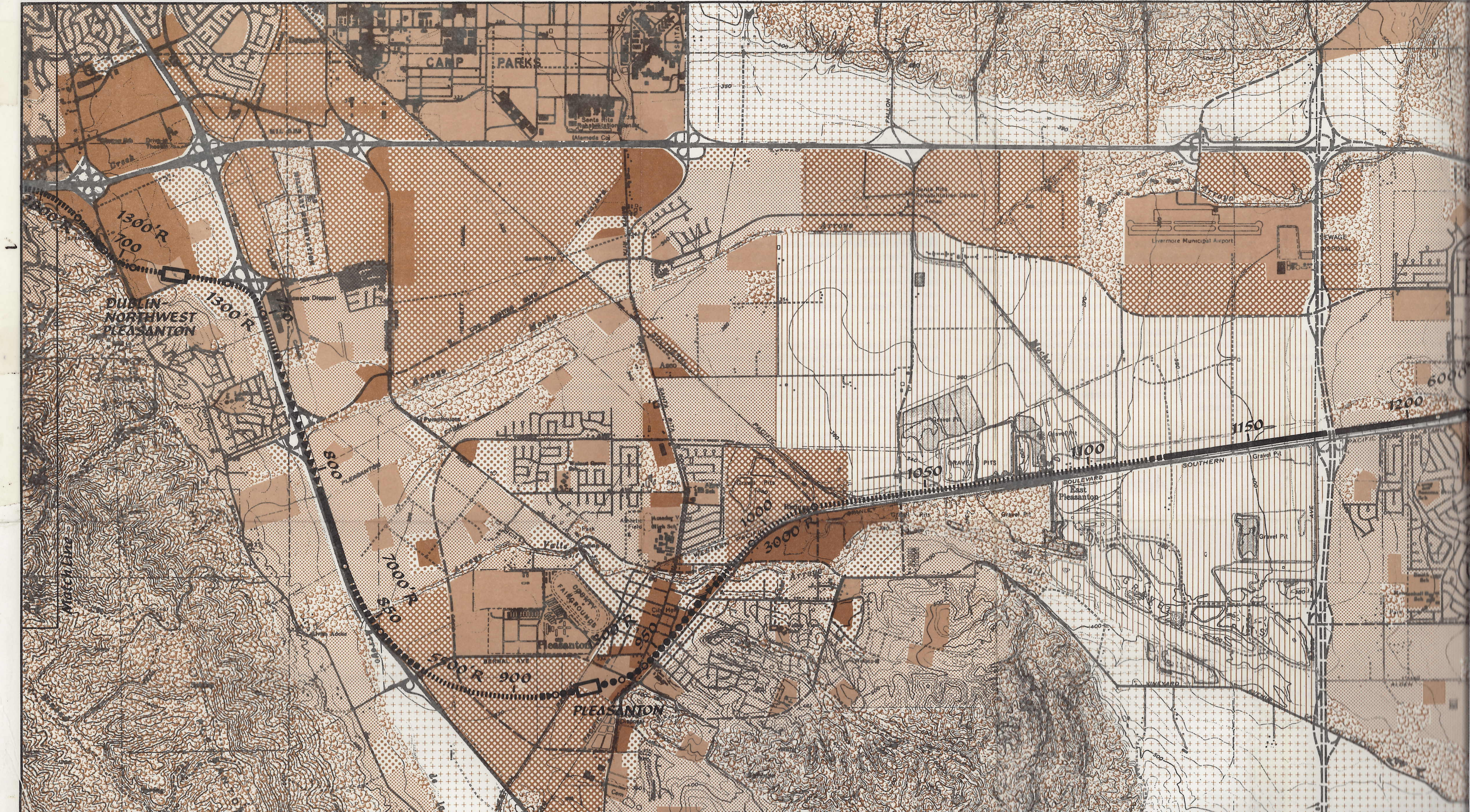
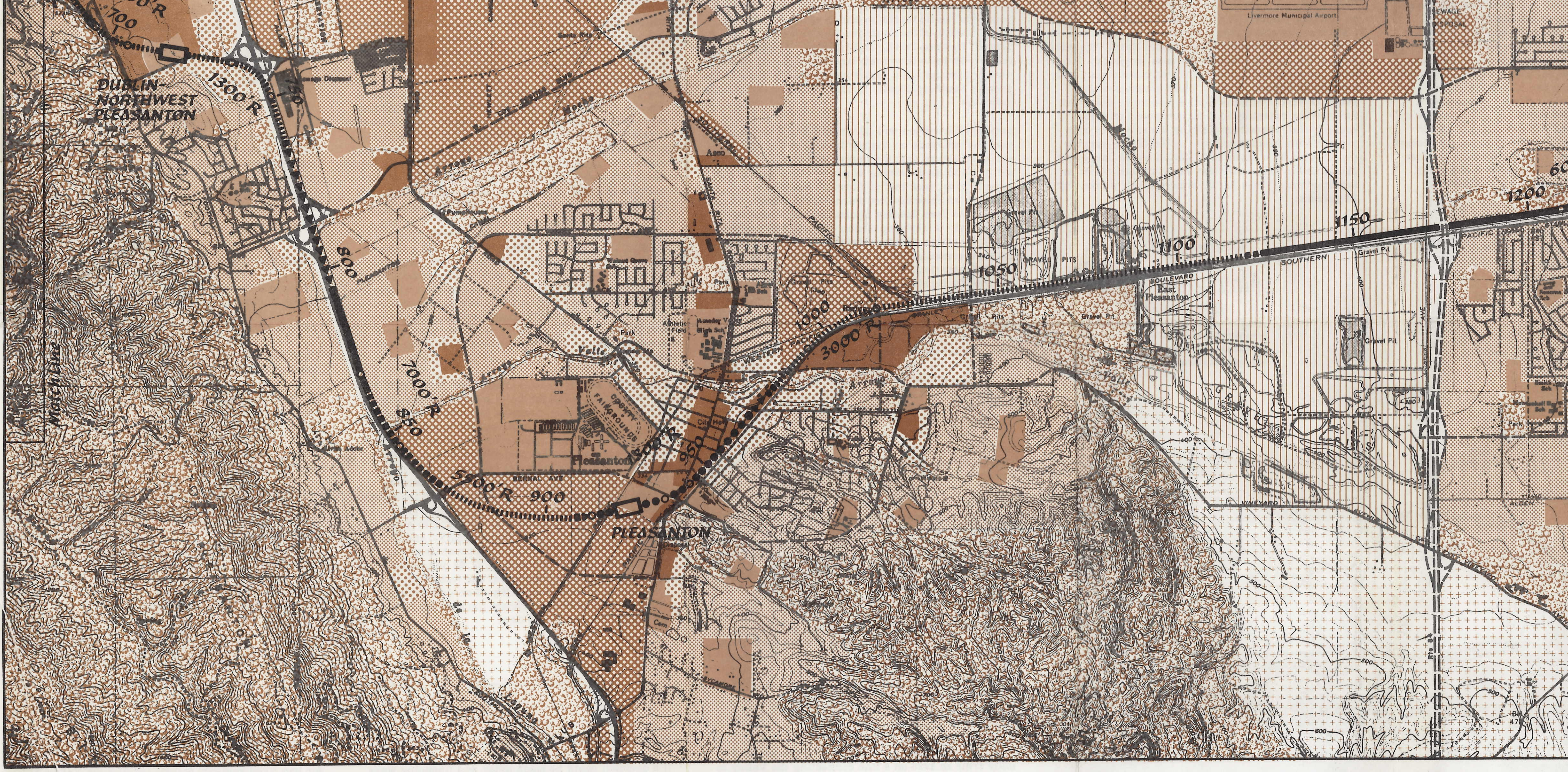

SAN LEANDRO
BAY FAIR
100
2800'R
150
300
30000'R
15000'R
250
CASTRO VALLEY
CASTRO VALLEY
6040'R
300
3040'R
3040'R
350
3040'R
400
3040'R
3040'R
SAN LORENZO
Fairmont Hospital
San Lorenzo High School
Earl Warren School
Arroyo High Sch
HAYWARD
All Saints Cem
Sunset Golf Course
Sewage Disposal


CAMP PARKS
Santa Rita Rehabilitation Center
(Alameda Co)
350


CAMP PARKS
Santa Rita Rehabilitation Center
(Alameda Co)
Livermore Municipal Airport
SEWAGE DISPOSAL
2800'R
1300'R
700
DUBLIN-
NORTHWEST
PLEASANTON
1300'R
750
800
7000'R
850
5600'R
900
Pleasanton
COUNTY FAIRGROUNDS
City Hall
1500'R
950
PLEASANTON
3000'R
1000
1050
GRAVEL PITS
1100
1150
1200
East Pleasanton
SOUTHERN PACIFIC
Matchline



▨ COMMERCIAL
▨ INDUSTRIAL
▥ SAND AND GRAVEL
▨ PUBLIC AND INSTITUTIONAL
▨ SINGLE FAMILY RESIDENTIAL
▨ MULTI-FAMILY RESIDENTIAL
▨ AGRICULTURE
▨ OPEN SPACE AND PARKS

Note: Castro Valley Station site assumed for cost estimating and impact analysis, further studies are recommended.

┅ AERIAL STRUCTURE
▪▪▪ EMBANKMENT
▬ AT GRADE
▸▸▸ DEPRESSED
●●● SUBWAY

Selected

VES

T route was a two step process
hoice among five corridors through
ould be connected to the existing
y a choice between a north and a
the Valley.

a corridor was recommended by
d selected by the Board because it
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nations on the existing system
of Rockridge Station on the Concord
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wn Pleasanton with downtown
a subway through downtown Pleas-
, this route would have the least

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Even if a large scale shift of office employment to Walnut Creek were feasible, it can be argued that the regional interest is best served by encouraging investment in Oakland, where the economic future is in doubt, rather than in Walnut Creek which already is booming.

In the Valley, the task was to select the most efficient set of stations and connect them with the least disruptive line. Once a corridor decision had been made, the station at the west end of the Valley adjoining the proposed Stoneridge Regional Shopping Center and

Capacity restrictions of the existing BART system require that Daly City-bound trains on the Fremont Line be spaced at least 6 minutes apart. Thus Valley patrons would have to transfer at Bay Fair Station to avoid increasing the time between trains on either the Valley Line or the Fremont Line south of Bay Fair. With 3.5 minutes allowed for the transfer (2 minutes for walking and 1.5 minutes waiting time), the trip from Pleasanton to Oakland City Center, for example, would take 36 minutes.

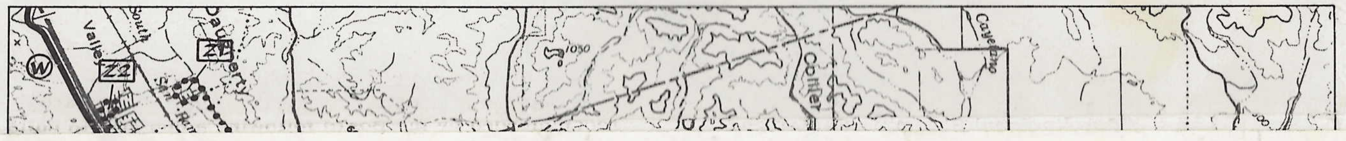
Livermore trains would start from a new platform east of the existing Bay Fair platform and would run south parallel to the Fremont Line, cross under the westbound freeway lanes, and enter the median of Route 238 Freeway. From the East 14th Street overpass in San Lorenzo to Dublin, BART would occupy forty feet of an 80 foot median. This freeway median will be incorporated in the reconstruction of I-580 during the next five years whether or not a BART rail extension is built. Five sites for a Castro Valley Station were evaluated, but none were selected by the Board of Control. Instead further studies are recommended by the Board following a decision to build

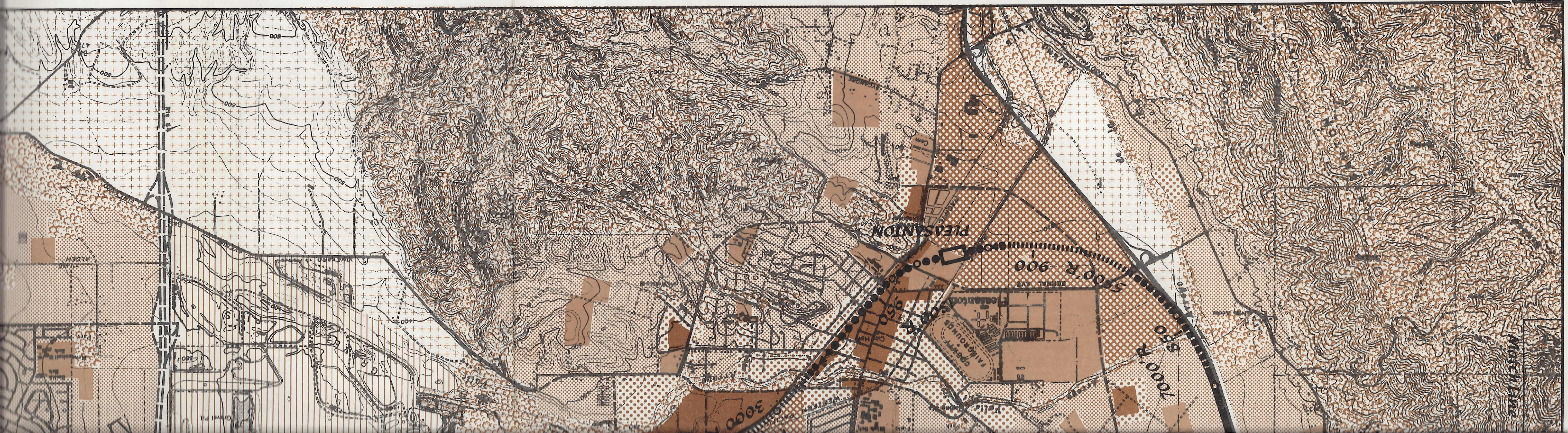
miles per hour. Savings: 2 minutes per trip.

- Build a high capacity transfer facility at Bay Fair Station. Savings: 0.5 minutes per trip.

Valley Express Bus Routes and Park/Ride Stations

━	ALL DAY SERVICE	○	ROUTE
– – –	PEAK PERIOD EXPRESS SERVICE	□	ROUTE TERMINUS
●●●●●	LOCAL PORTION OF PEAK PERIOD EXPRESS SERVICE	△	PARK-RIDE LOT





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▇	PUBLIC AND INSTITUTIONAL
░	SINGLE FAMILY RESIDENTIAL
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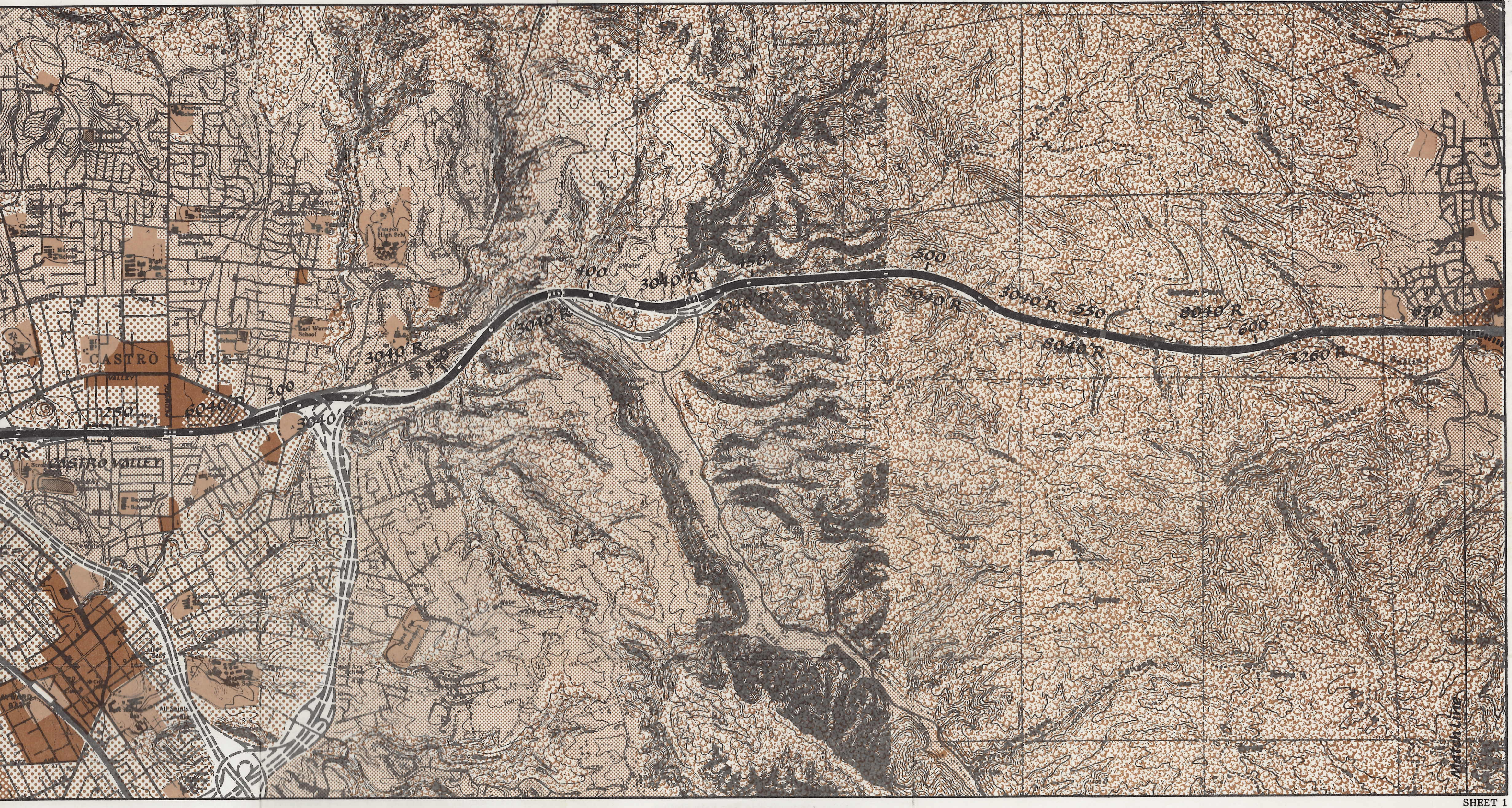
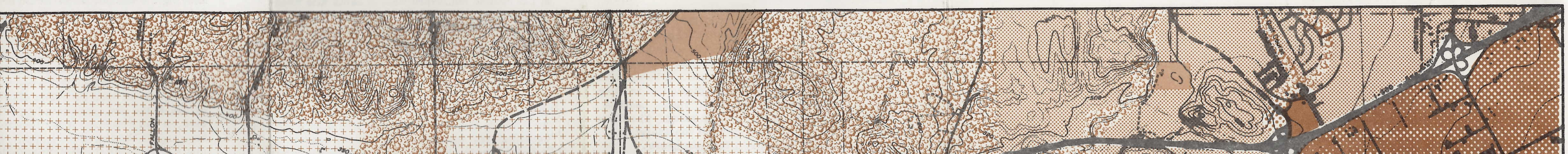
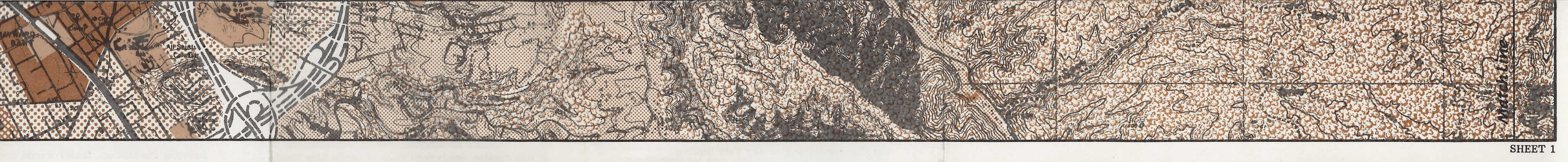
▪▪▪	EMBANKMENT
━	AT GRADE
▸▸▸	DEPRESSED
●●●	SUBWAY

Selected BA

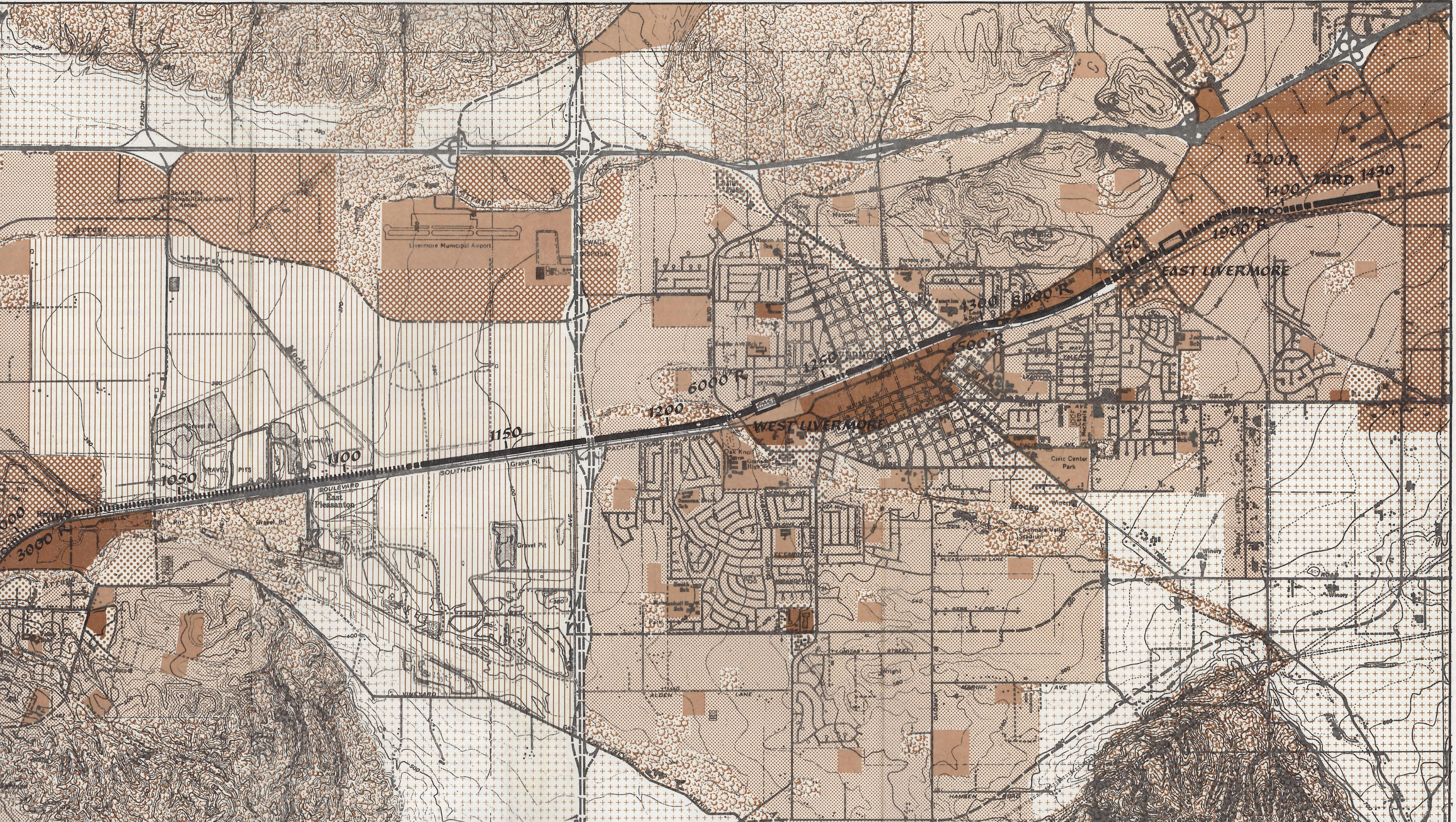

CASTRO VALLEY
CASTRO VALLEY
250
300
350
400
450
500
550
600
650
3040'R
6040'R
8040'R
3260'R
Match Line

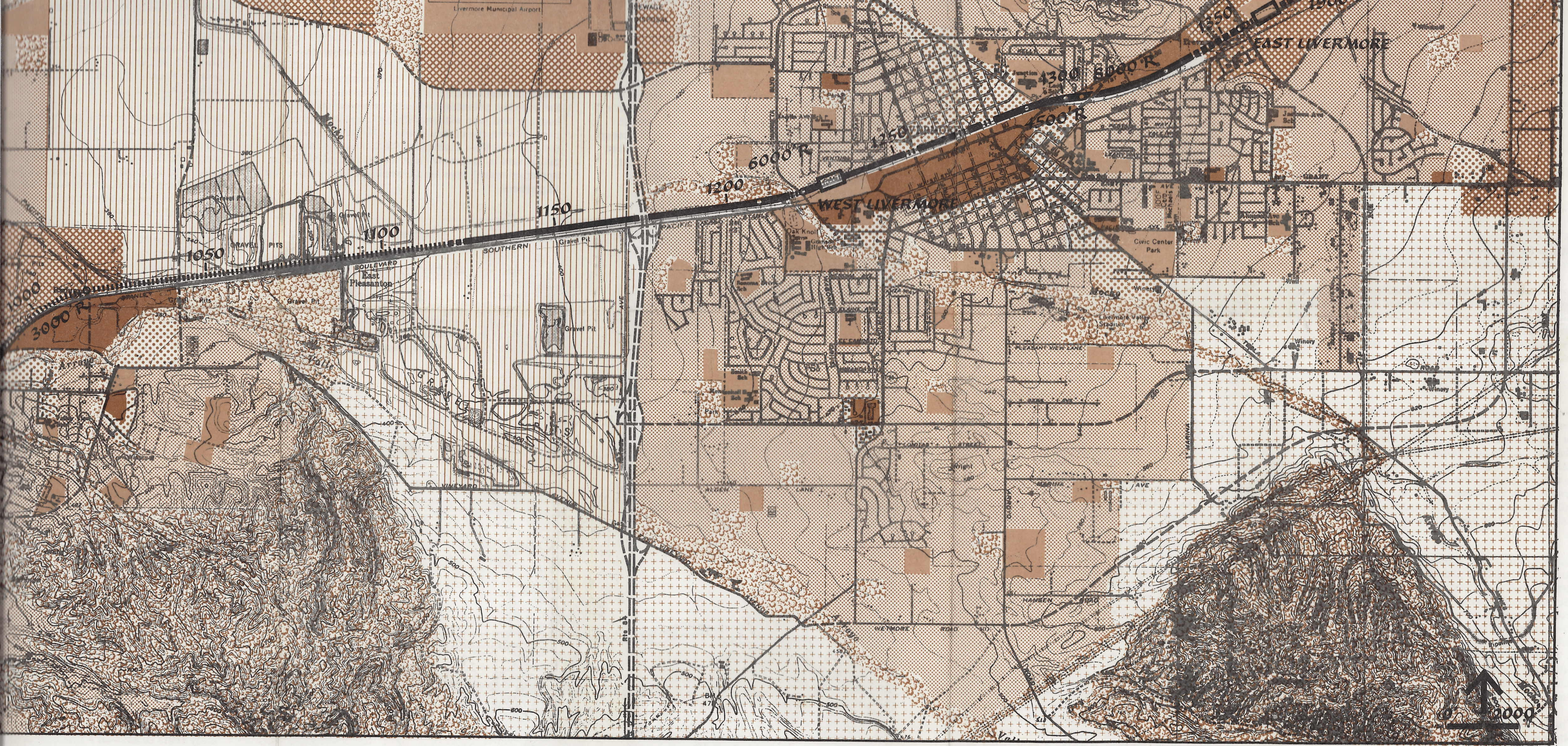
SHEET 1




Match Line

SHEET 1

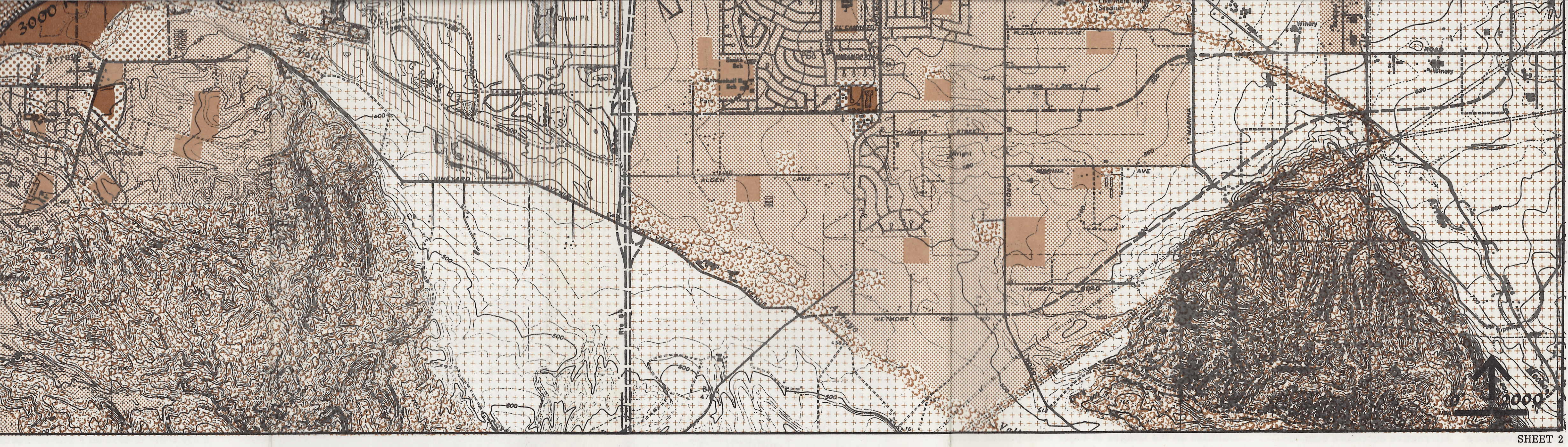

1200'R
YARD
1430
1400
1900'R
1350
EAST LIVERMORE
1300
8000'R
1500'R
1250
6000'R
1200
WEST LIVERMORE
1150
1100
1050
3000'R
Livermore Municipal Airport
Sewage Disposal
Gravel Pits
Gravel Pit
East Pleasanton
Southern
Boulevard
Oak Knoll
Civic Center Park
Livermore Valley Stadium
Winery
Pleasant View Lane
Vineyard
Alden Lane



SHEET 2

Livermore-Pleasanton BART Extension Study

Selected BART Line and Composite General Plans, 1990



SHEET 2

Livermore-Pleasanton BART Extension Study

Selected BART Line and Composite General Plans, 1990

March 1975
Revised December 1975
Published July 1976

BART ALTERNATIVES

Selection of a BART route was a two step process involving first a choice among five corridors through which the Valley could be connected to the existing system, followed by a choice between a north and a south route within the Valley.

The Dublin Canyon corridor was recommended by the consultants and selected by the Board because it would have the shortest travel times for Valley BART patrons to all destinations on the existing system except those east of Rockridge Station on the Concord Line, lowest capital costs, highest patronage, and greatest public support. Within the Valley a southern route through downtown Pleasanton and Livermore was selected because it would minimize average travel time, would minimize travel on local streets, and would link downtown Pleasanton with downtown Livermore. With a subway through downtown Pleasanton, as proposed, this route would have the least

through this corridor would be more likely to drive to Bay Fair Station. The expressed views of Danville, Alamo, and Walnut Creek were in opposition to a BART extension through their communities. Finally, the Concord Line definitely will be overloaded and is much less able to carry additional riders than the Fremont Line, a capacity deficiency that would be aggravated by a Pittsburg-Antioch BART extension.

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